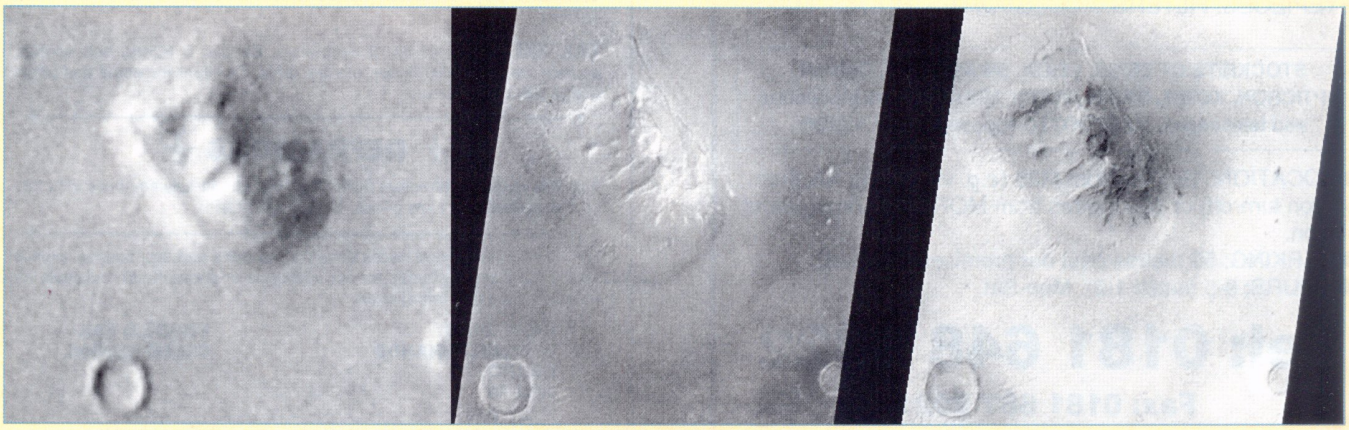
Close-ups unveil the 'face on Mars'

Close-ups of the so-called 'Face on Mars' appear to show nothing more than a pile of rocks, but will the new pictures end the controversy? By David Whitehouse

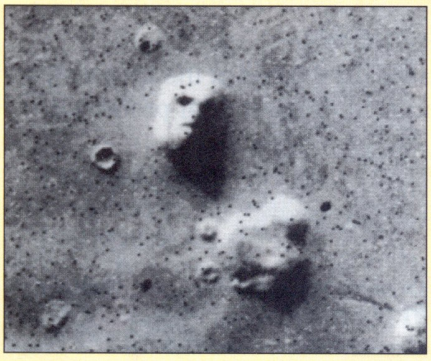


LEFT: The best Viking image of the 'face'. CENTRE: A portion of MOC frame 22003 shown normally. RIGHT: The same MOC frame but with the contrast reversed (that is, light features were forced to be dark, and dark features were forced to be light) to simulate the approximate lighting conditions of the Viking image. Photos: NASA/JPL/MSSS.

Remember 1976, the year of Concorde's first commercial flight, the death of Mao Zedong, the Generation Game was BritainÆs most popular TV programme and Swedes ruled Wimbledon and the pop charts in the from of Bjorn Borg and Abba. It was also the time of Mars landings. Viking 1 reached Mars and touched down in July leaving the orbiter part of it circling the planet looking for a place for its sister craft Viking 2 to land when it arrived later in the year. One possible area of interest was Cydonia, a region of buttes and mesas along an escarpment that separated heavily cratered highlands to the south from low lying lowland plains to the north.

Here the upland Arabia Terra region dissolves into the massive plain that is Acidalia Planitia. In one direction it is 2,000 km to the adjacent upland region Tempe Terra, 2,500 km away is the northern pole. Between Cydonia and the pole lie some remarkable so-called splash craters that look as though something impacted wet slushy sand.

The original Viking 1 Orbiter image of the so-called face taken on July 25, 1976 during the search for a landing site for Viking 2. Photo: NASA/JPL.



Cydonia is a geologist's paradise being the boundary between ancient upland topography and low lying plains with scattered isolated hills representing the remnants of the uplands that once covered this low-lying basin. The regions weathering and erosion provide insights into the subsurface of Mars and its surface processes.

But there are other reasons why no place on Mars has become as interesting to so many as Cydonia. As scientists were about to find out in July 1976.

The text of JPL's press release of that year, number P-17384, says it all. One of the photos of Cydonia has a mountain that "resembles a human head." It was 3 km across and 1873 km away when the picture was taken so the resolution was quite poor. The picture speckled with data dropouts. Half in shadow the 'face' appeared to stare up at the sky with the left eye and the nose in shadow. But look closely and you will see that its appearance as a face is based upon one depression forming the right eye. You might think that it's not much to base a mythology on. You would be wrong.

Remember this was the 1970s, the decade common sense forgot. Lee Marvin croaked his way to number one in the pop charts; London Bridge was dismantled and rebuilt in Colorado and we were introduced to Mork and Mindy! The face on Mars spawned a cottage industry, still going strong today, that holds it as an artificial structure built by a long dead race of Martians.

So there we have it, one curiously placed depression and we have wild and half-baked speculation about ancient civilisations on Mars by those who are quite a few pixels short of an image themselves.

But wait there is more evidence. Look more closely at the Viking images and you will see other artificial structures. There are other faces there, pyramids, ruined cities, and geometrical shapes.

Things got even more suspicious when in 1993 the Mars Observer spacecraft mysteriously failed just as it was about to enter Martian orbit. Clearly the authorities didn't want the face on Mars to be photographed again some said seeing something more afoot than the fact that spacecraft sometimes fail.

Now the story comes up to date. Shortly after midnight on Sunday morning of April 5 this year the Mars Orbital Camera on the Mars Global Surveyor (MGS), which had recently reached the planet, took a picture of the landscape ranged below it. It occurred 375 seconds after the closest Mars point on MGS's 220th orbit.

The morning sun was 25 degrees above the horizon and MGS's camera was pointed at a region some 444 km away, towards latitude 40.8 deg N, 9.6 deg W. Towards the face on Mars.

MGS was lucky and got a clear picture. Winter clouds can cover much of the Northern Hemisphere of Mars above 40 degrees north at this time of year. Some attempts to image the surface show it completely obscured by clouds.

The image was stored in the spacecraft's onboard memory and later that day was transmitted to earth where it was received by one of the large antennas that comprises NASA's Deep Space Network of tracking stations.

Monday morning April 6 and the image was computer processed and then passed to JPL who placed it on their website. Within an hour that image was had been downloaded to thousands of computers world-wide.

To get the face MGS imaged a swath 4.4 km wide and 41.5 km long. This included the face and the plains between it and another upland region to the south. The image had a resolution of 4.3 m per pixel, which was ten times the resolution of the Viking images.

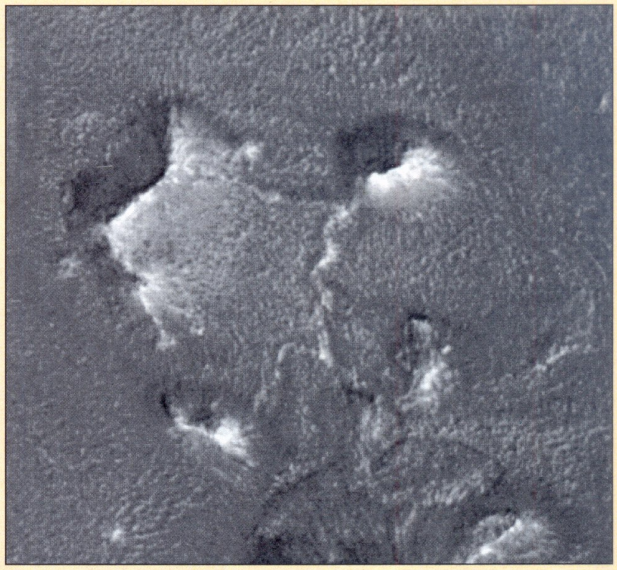
And what did it show – just a pile of rocks, the face was gone.

Or had it?

Let's face it. What ever the new image revealed it wasn't going to dissuade those who were seriously committed to the artificial face on Mars idea. If the image showed clearly artificial structures then they would have been delighted. If it didn't then clearly the image has been doctored.

Much has been made of the fact that the MOC image is only 1024 pixels wide and many other MOC images are 2048 pixels wide. It has been said that there is a conspiracy to diminish the detail to be seen in the face.

Richard Hoagland is often quoted as a prime advocate of the conspiracy theory. In a radio interview after the new face image was released he said that the image processing involved "radically reduces our ability to detect any artificial substructures present in the image."



'The city square', an area believed by some to be the centrepiece of a geometric network of artificial structures within the Cydonia region. Photo: NASA/JPL/MSSS.

You would think ten times the resolution of Viking should be plenty enough increase in resolution to see if it is a face. What's more, the real reason why the image swath was 1024 pixels wide was a trade-off between image size and quality. It could have been more pixels across but then the chance of missing the face altogether was deemed too high.

"Ah ha" they reply, how do you explain this. The face is 40.860 deg north, and that is the arctangent of two important mathematical numbers divided by each other, e/pi. Again sorry folks, that's not an accurate estimation of the face's position. According to the best Martian frame of reference based on Viking data it is 40.71 N 9.99W. But MOC's data suggest that this position should be revised to 40.67 N and 9.63 W, that is a real distance shift of 17km on the ground or about seven times the size of the mountain. When this is taken into account any numerical coincidence disappears.

Mind you seeing artificial structures on Mars is infectious. Even JPL in one its images calls one of the features 'the city square' referring to an image released on April 24 after MGS's third view of Cydonia. The city square in question lies approximately midway between two pyramidal hills and is a mottled collection of craters and hummocks.

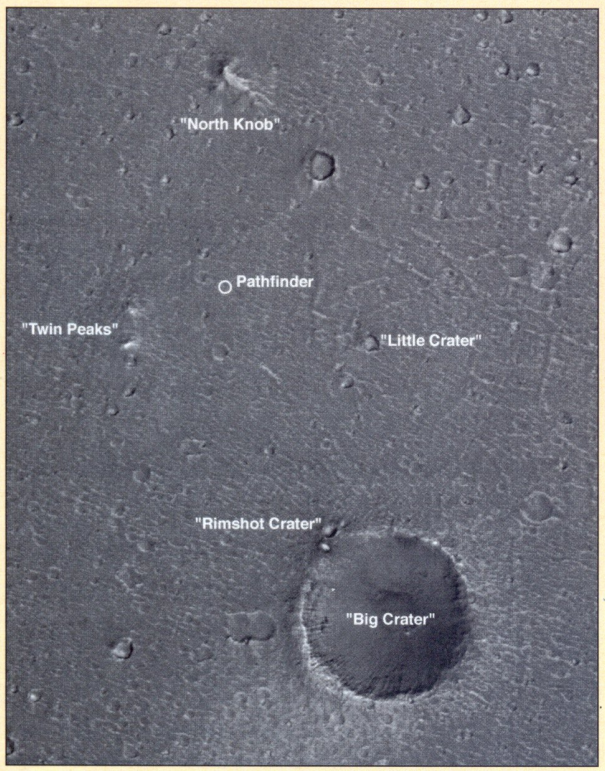
So there we have it, Viking Orbiter frame 070A13 and MOC frame 22003 both images of the most famous mountain on Mars. To compare them properly you need to reverse contrast the MOC image to approximate to the lighting conditions when the Viking picture was taken.

Now here's the clincher. Someone has de-resolved the MOC image and adjusted the shading so that it matches the illumination and resolution of the original Viking image. Hey presto, the face appears. Take information out of the MOC image, blur it a little and it's a face. Look at it in more detail and it's a pile of rocks. End of story.

But I know that this will not change many people minds that have already decided that the evidence for an ancient race of face builders on Mars is overwhelming. There was a time when I would argue with these people, but when I look at the Viking face image again I realise that I can't be bothered any more.

David Whitehouse is the BBC Science Correspondent.

Mars Pathfinder landing site pictured



The Mars Global Surveyor camera successfully observed the Mars Pathfinder landing site on April 22. The spacecraft was on its 256th revolution of the Red Planet orbiting at a distance of about 800 km from the landing site. Although the resolution of the image is not high enough to reveal the Pathfinder lander, several landmarks familiar from the surface images are visible, including the 'Twin Peaks' hills and 'Big Crater.' Scientists are trying to identify other features that might help better pinpoint the location of the Pathfinder lander.

Photo: NASA/JPL/MSSS.